

FIG. 1b

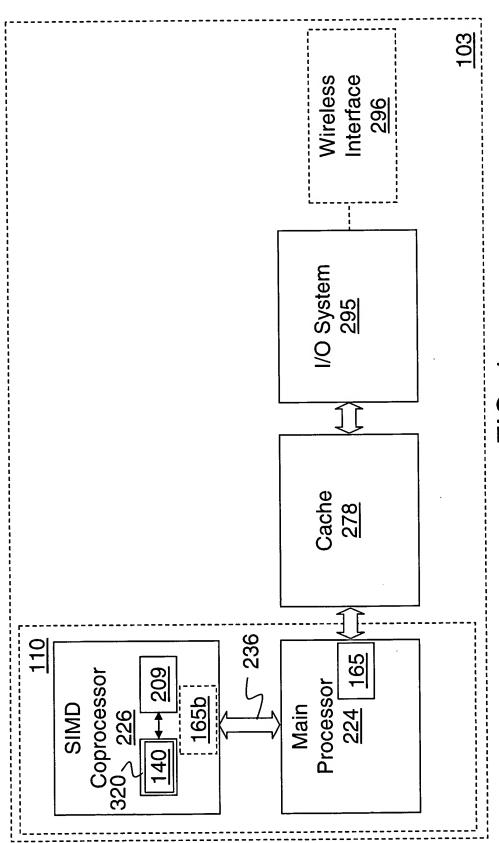
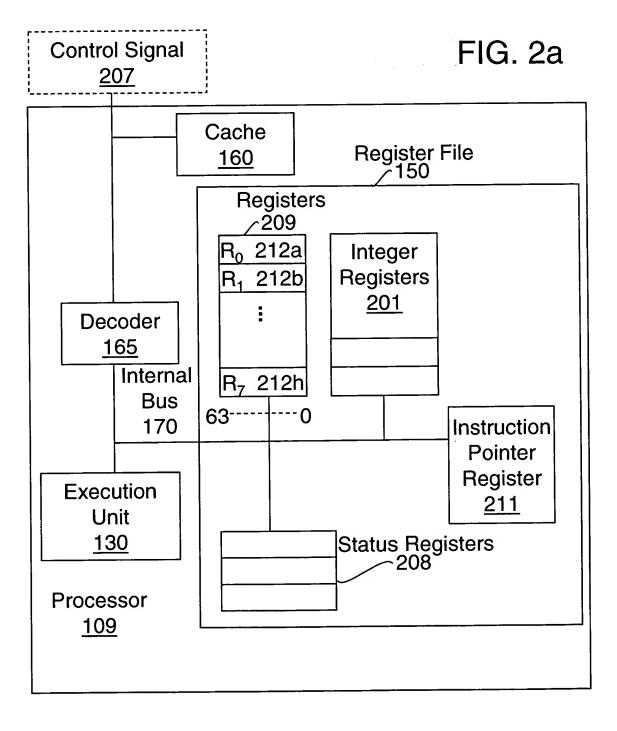


FIG. 1c



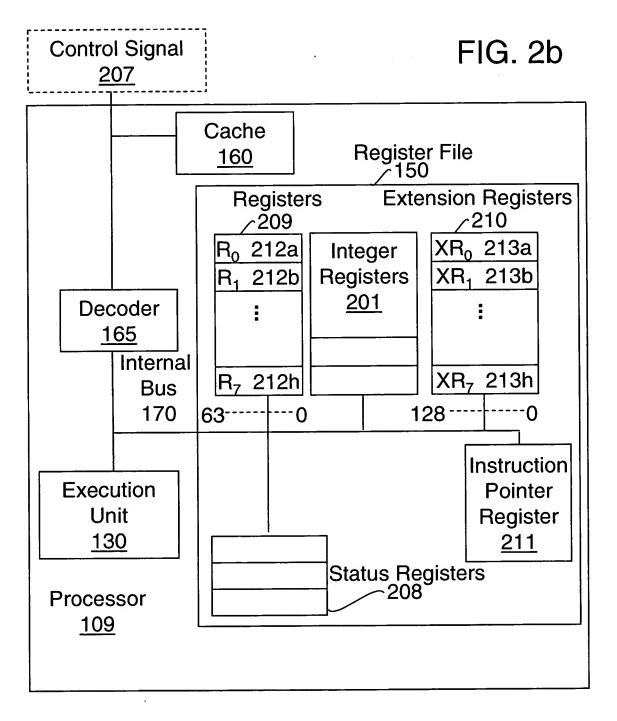


FIG. 3 Start 301 Receive and Decode Instruction. Access Register File or 302 Memory. 303 **Enable Execution Unit** with Operation. 304 Store Results In Register or Memory Stop <u>300</u>

48 47 40 39 32 31 24 23 16 15 8 7 0	Byte 6 Byte 5 Byte 4 Byte 3 Byte 2 Byte 1 Byte 0	Packed Byte 411	48 47 32 31 16 15 0	Word 2 Word 1 Word 0	Packed Word 412	32 31	Doubleword 1 Doubleword 0	Packed Doubleword 413	0	Quadword 0	Quadword 414
56 55 48 47 40			48 47	Word 3 Wo			Doubleword 1	Pac			
63	Byte 7		63	>		63			63		

FIG. 4a

FIG. 4b

Packed Double 424

					5 a						2 b
0 2	qqqq qqqq		0 2	qqqq qqqs	FIG.	. ~	qqqq qqqq	* * * * *		qqqq qqqq	FIG. 5b
5 87	qqqq qqqq	510	5 87	dddd ddds	11	5	qqqq qqqq	512	2	dddd ddds	513
16 15	व ं वववव वववव	ntation	16 15	s qqqq qqqs	ntation 5	16 15	qqqq qqqq	entation	16 15	qqqq o	ntation
24 23		represe	24 23		epreser		qqqq qqqq	r repres		qqqq qqqq qqqs	represe
32 31	qqqq qqqq	register	32 31	qqqq qqqs	egister r	32 31	qqqq qqqq	-registe	32 31		register
	qqqq qqqq	Unsigned packed byte in-register representation 510		qqqq qqqs	packed byte in-register representation 511		वववव वववव वववव	Unsigned packed word in-register representation 512		qqqq qqqq	packed word in-register representation 513
40 39	qqqq qqqq	packed	40 39	qqqq qqqs	oacked		qqqq qqc	packed		qqqq qqqs	packed
48 47		nsigned	48 47		Signed	48 47		nsigned	48 47		Signed
56 55	qqqq qqqq	ָב ב	56 55	qqqq qqqs			वववव वववव वववव	n		qqqq qqqq qqqs	
	qqqq qqqq			qqqq qqqs		m	qqq qqqq		က	qqq qqqs	
63	<u> </u>		63	S		63			63		

63	32 31	31	0
qqqq qqqq	वववव वववव वववव वववव वववव वववव वववव	वववव वववव वववव वववव वववव वववव वववव	qqqq qq
	Unsigned packed doubleword	cked doubleword in-register representation 514	
63	32	32 31	0
dddd ddds	वववव वववव वववव वववव वववव वववव वववव	qqqq qqqq qqqq qqqq qqqq qqqs	qqqq qq
	Signed packed doubleword in	ked doubleword in-register representation 515	FIG. 5c
127	64	64 63	0
qqqq	qqqq qqqq	dddd dddd	qqqq qqqq qqqq
	Unsigned packed quadword i	Unsigned packed quadword in-register representation 516	
127	64	64 63	0.
qqqs	qqqq qqqq	ddds	bbbb bbbb bbbb
	Signed packed quadword in	cked quadword in-register representation 517	FIG. 5d

ı -										
	31-28	27-24	23,22	21,20	19-16	15-12	11-8	7-5	4	3-0
	<u>610</u>	<u>611</u>	<u>612</u>	<u>613</u>	<u>602</u>	<u>605</u>	<u>616</u>	<u>617</u>	\	<u>603</u>
. '	601							· 6	7	

FIG. 6a

1					
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	23-16	15-8	7,6	5-3	2-0
	622	624	626	<u>602</u>	<u>603</u>
<u>621</u>				ر 60	<u>5</u>

FIG. 6b

[
	31-16	15-8	7,6	5-3	2-0
1	632	634	<u>626</u>	<u>602</u> (<u>603</u>
<u>631</u>		······		ر 60	5

FIG. 6c

]	39-32	31-16	15-8	7,6	5-3	2-0
	640	632	634	<u>626</u>	<u>602</u> (<u>603</u>
<u>6</u>	41				60)5

FIG. 6d

FIG. 7a

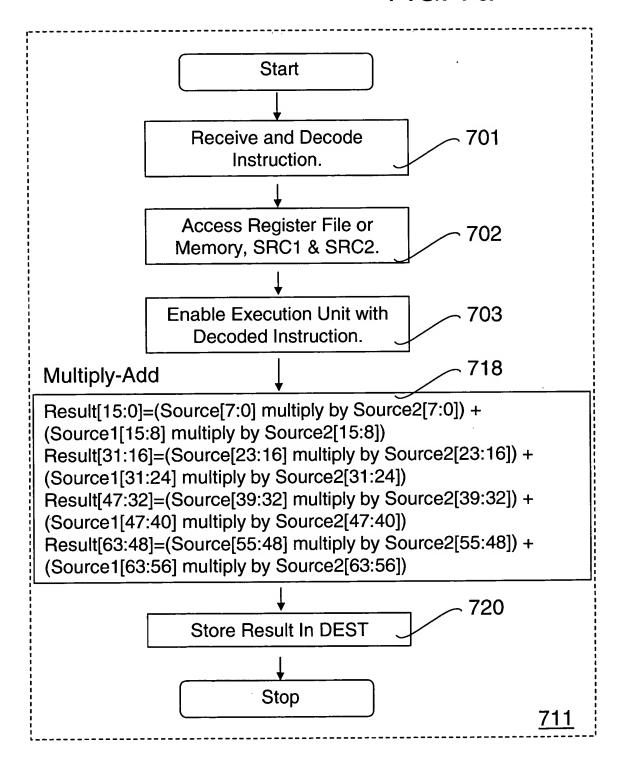
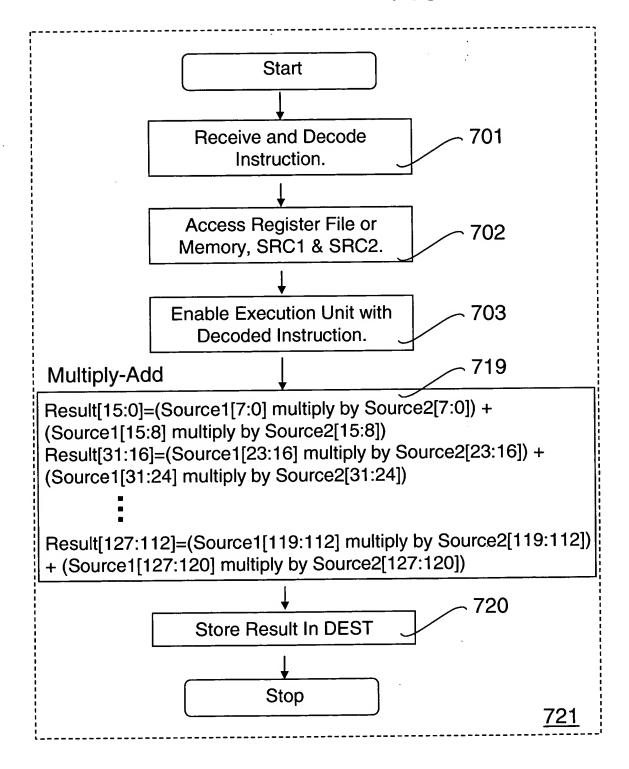
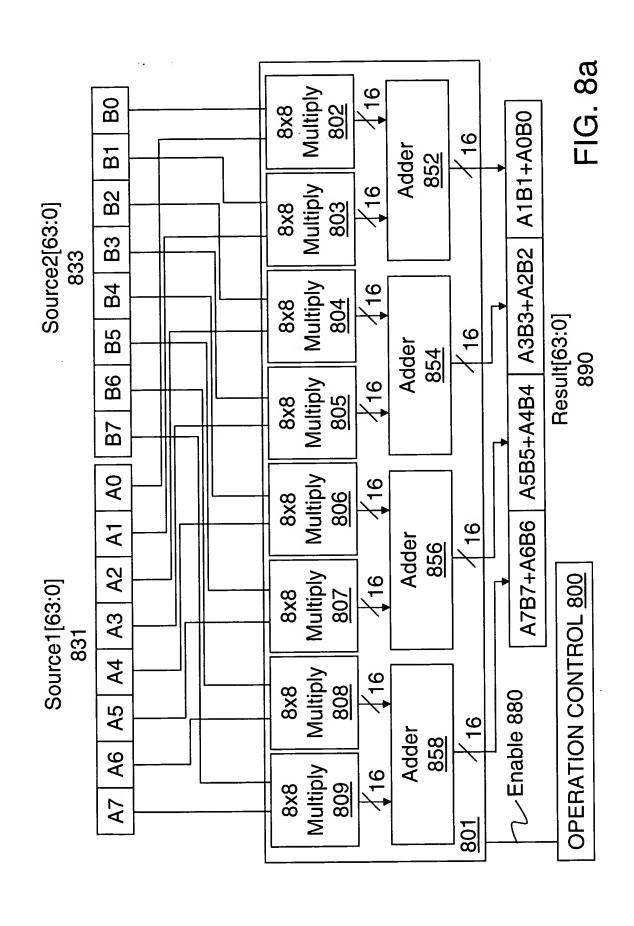


FIG. 7b





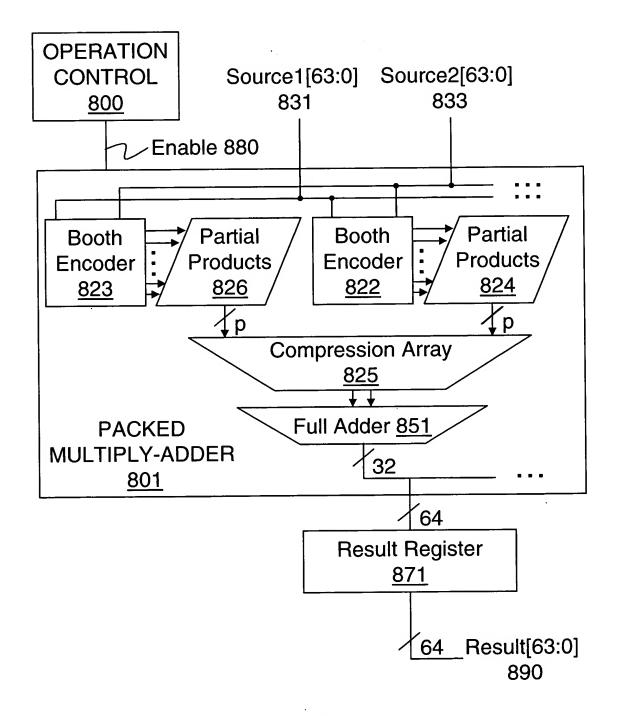
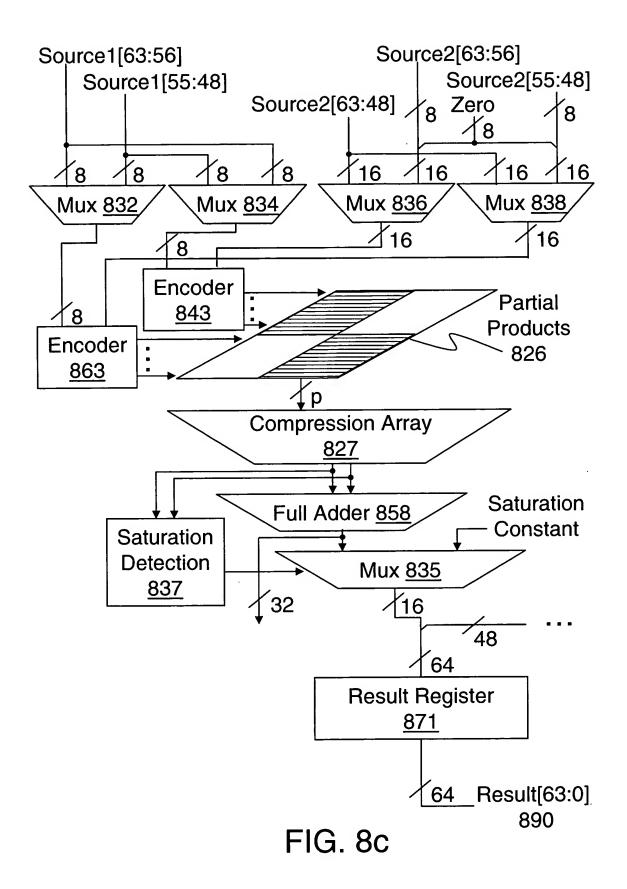
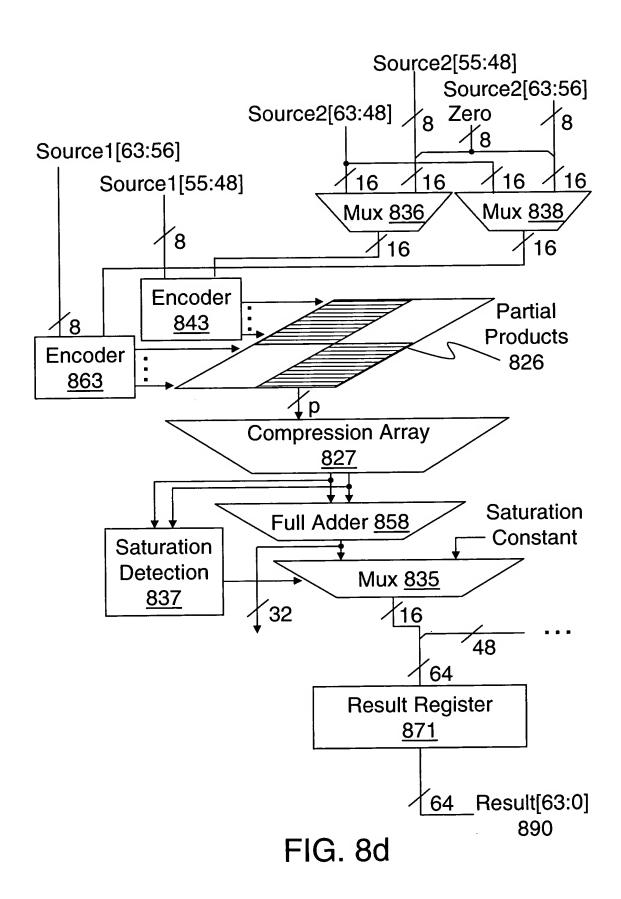


FIG. 8b





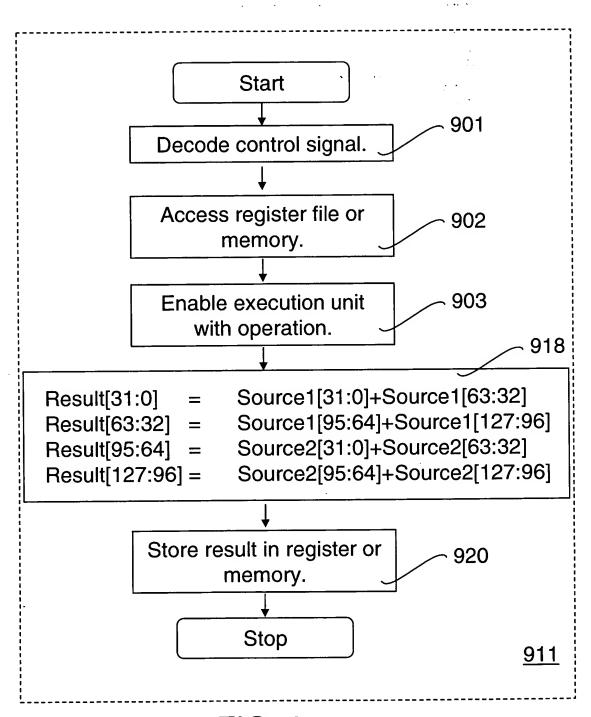


FIG. 9a

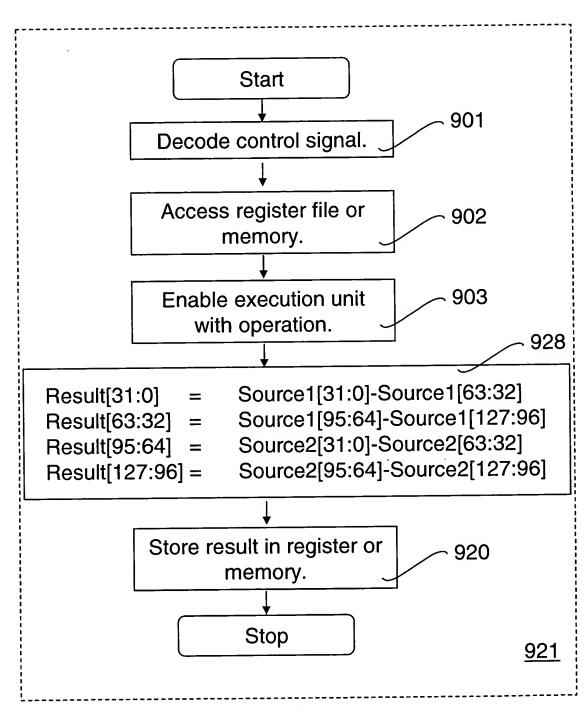


FIG. 9b

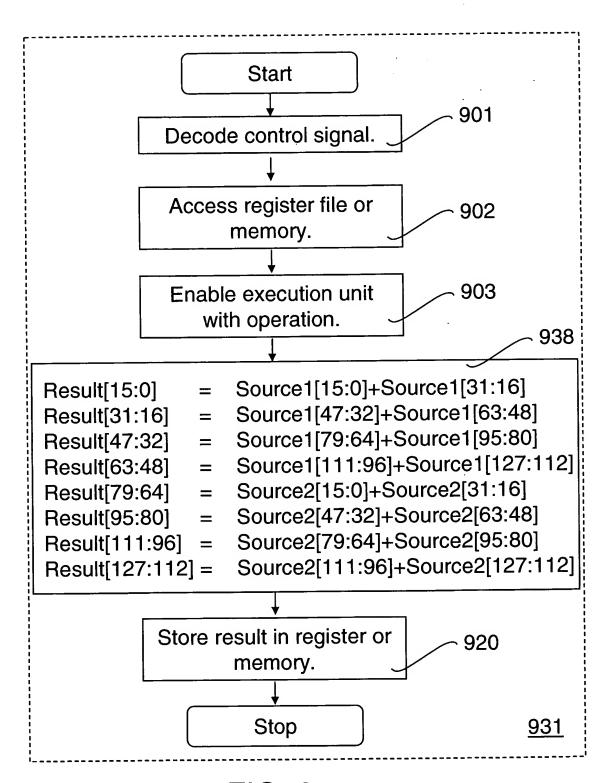


FIG. 9c

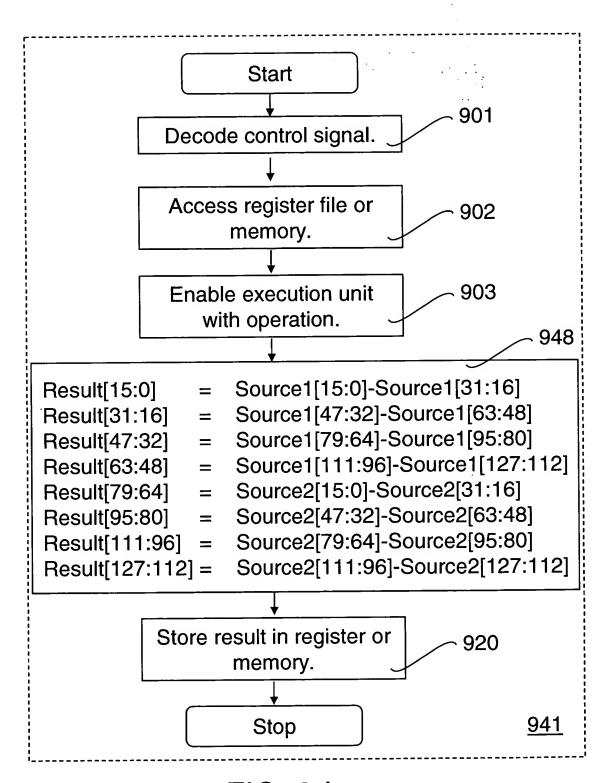


FIG. 9d

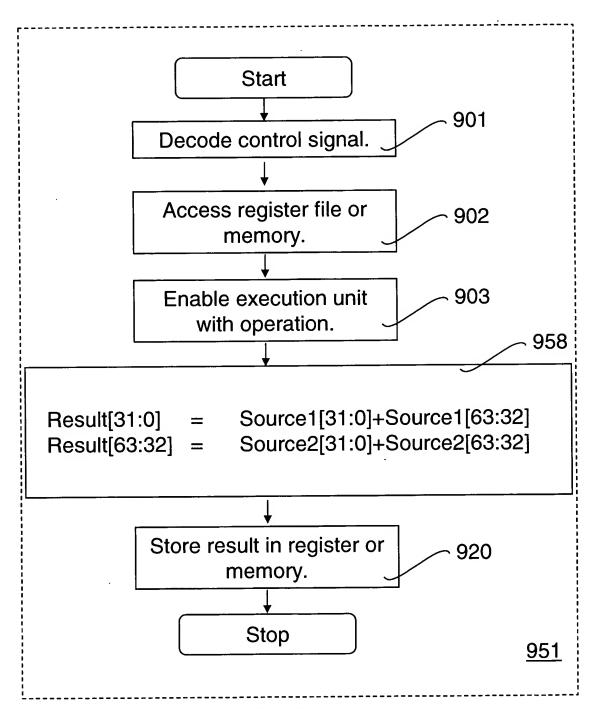


FIG. 9e

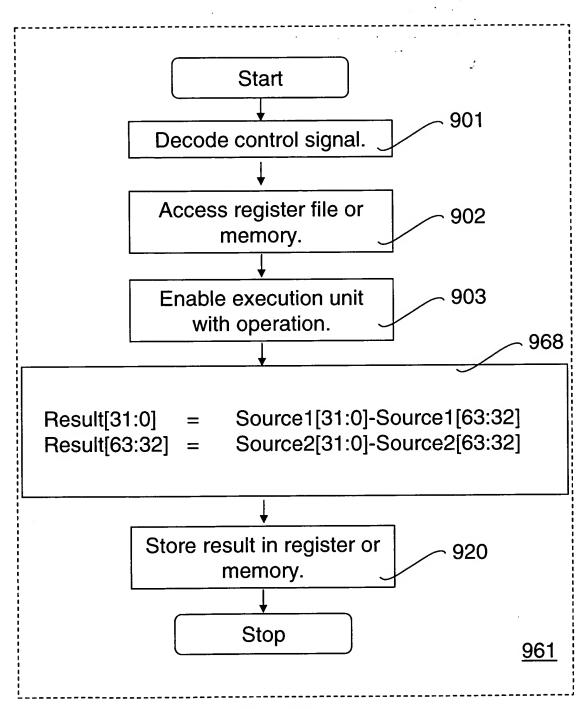


FIG. 9f

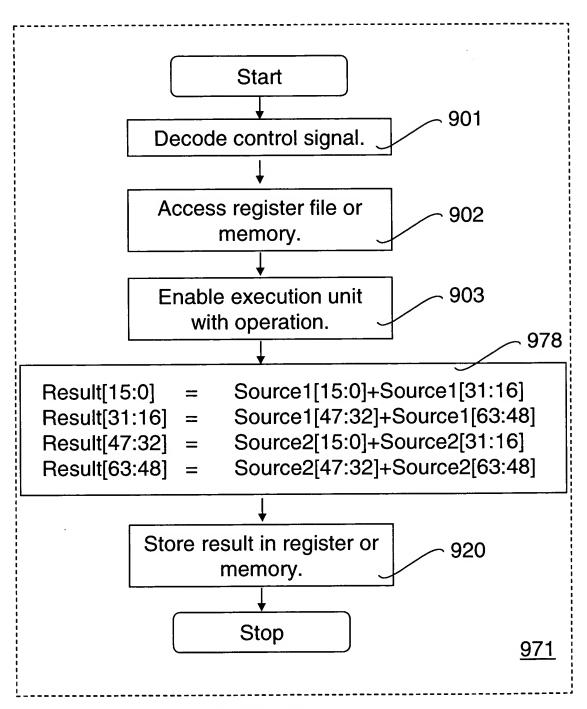


FIG. 9g

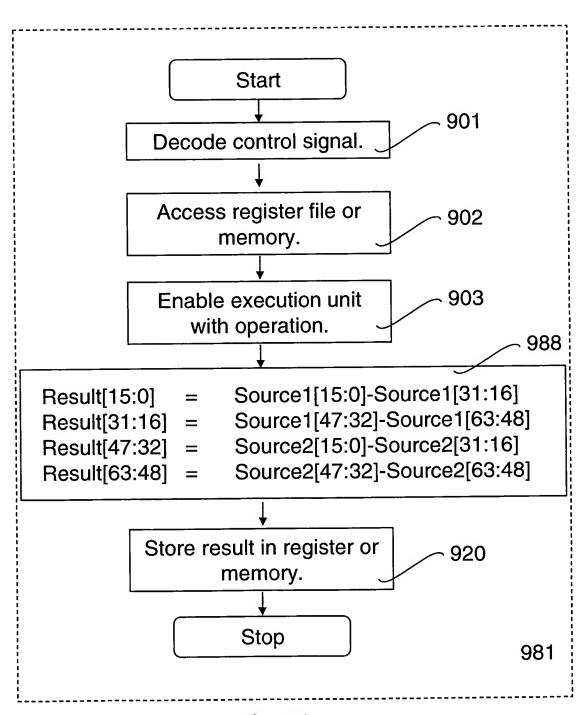
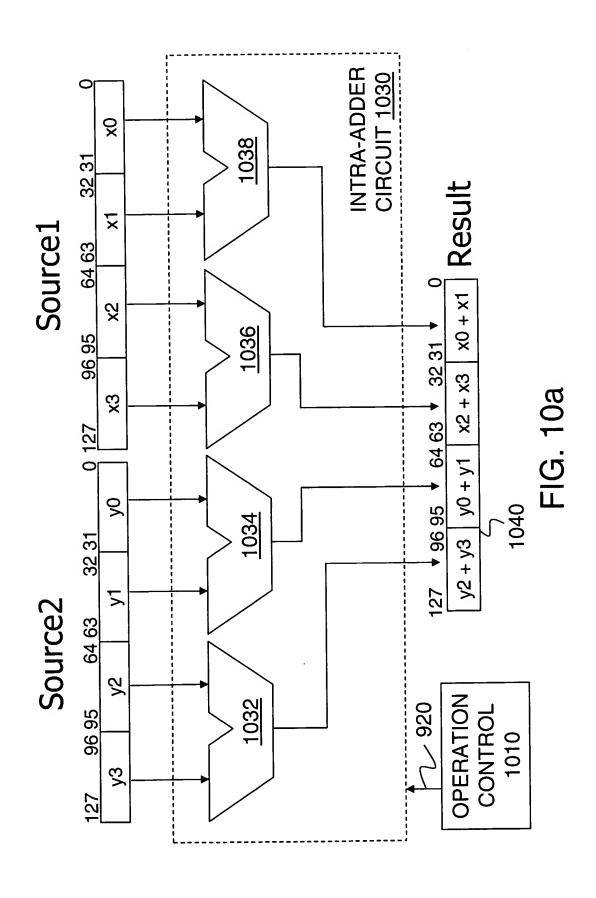
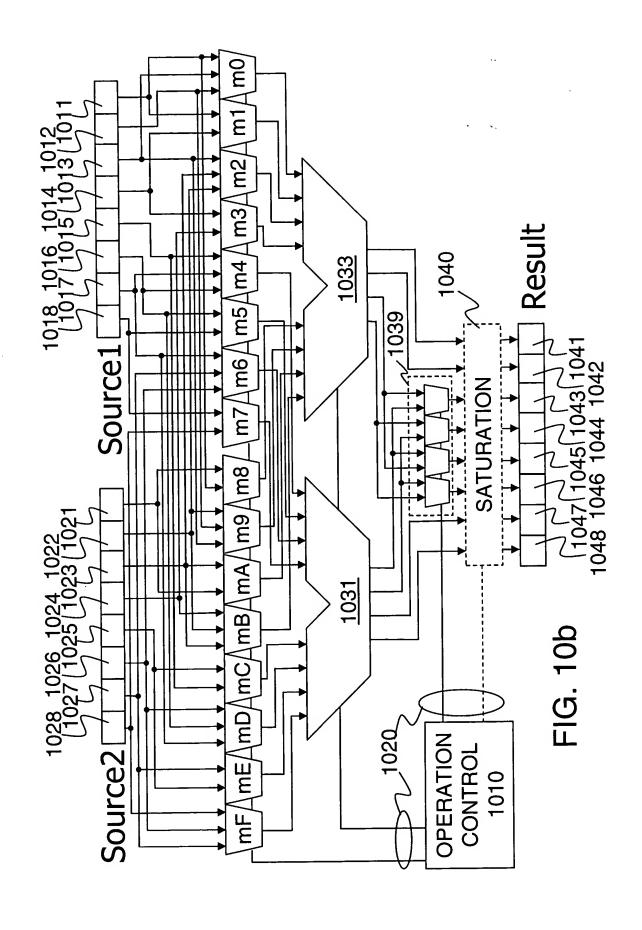
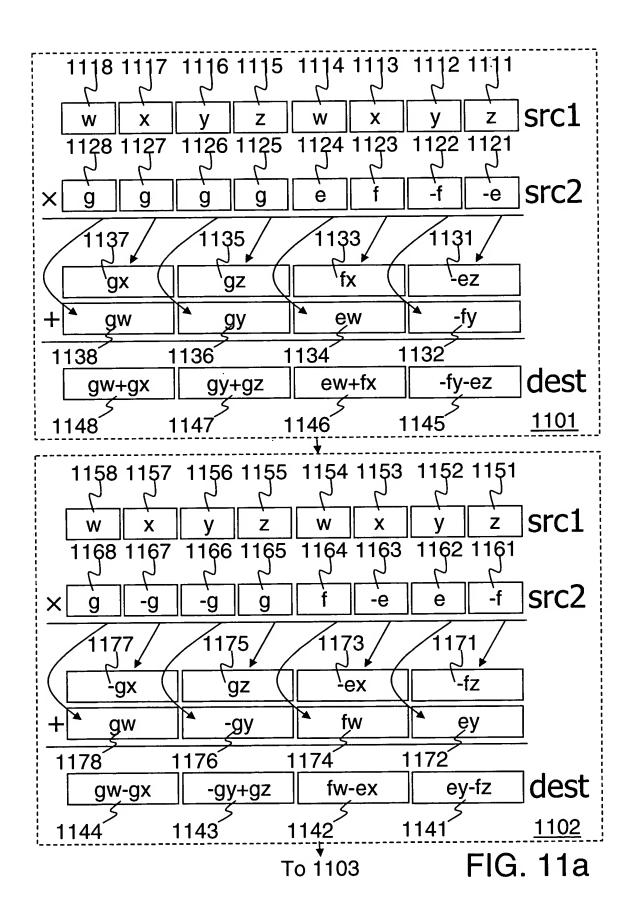


FIG. 9h







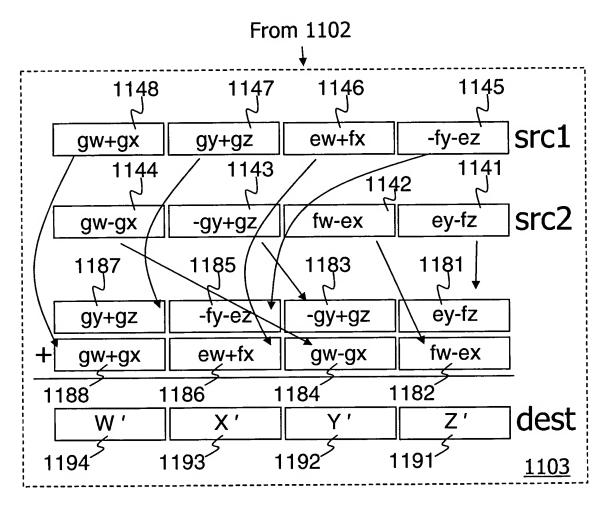


FIG. 11b

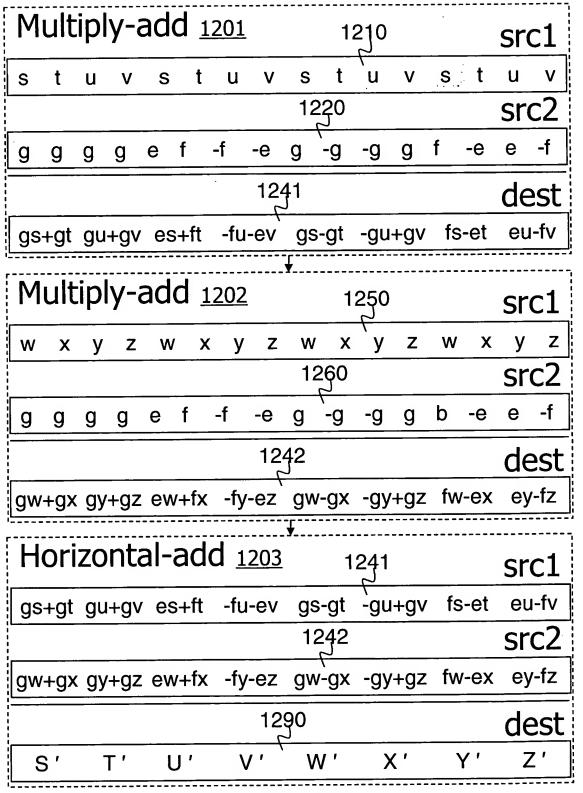


FIG. 12

$$\begin{bmatrix} g & g & g & g \\ e & f & -f & -e \\ g & -g & -g & g \\ f & -e & e & -f \end{bmatrix} \begin{bmatrix} k & l & m & n \\ o & p & q & r \\ s & t & u & v \\ w & x & y & z \end{bmatrix} \begin{bmatrix} g & e & g & f \\ g & f & -g & -e \\ g & -g & -g & e \\ g & -e & g & -f \end{bmatrix}$$

$$= \begin{bmatrix} g & g & g & g \\ e & f & -f & -e \\ g & -g & -g & g \\ f & -e & e & -f \end{bmatrix} \begin{bmatrix} K' & L' & M' & N' \\ O' & P' & Q' & R' \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K & L & M & N \\ O & P & Q & R \\ S & T & U & V \\ W & X & Y & Z \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ O & P & Q & R \\ S & T & U & V \\ W & X & Y & Z \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ O & P & Q & R \\ S & T & U & V \\ W & X & Y & Z \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ O' & P' & Q' & R' \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ O' & P' & Q' & R' \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ O' & P' & Q' & R' \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ O' & P' & Q' & R' \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ O' & P' & Q' & R' \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ O' & P' & Q' & R' \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M' & N' \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K & L & M & N \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ S' & T' & U' & V' \\ W' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N \\ S' & T' & U' & V' \\ Y' & X' & Y' & Z' \end{bmatrix}$$

$$= \begin{bmatrix} K' & L & M & N$$

FIG. 13

Mult	tipl	y-a	adc	14	1 01			14	421	- -			sr	c1
k l	m	n	0	р	q	r	s	t	`u	٧	W	X	у	z
					_		14	31					sr	c2
g g	g	g	g	g	g	g	g	g	g	g	g	g	g	_g
						144	1						de	est
gk+gl	gm	+gn	go-	⊦gр	gq	+gr	gs+	-gt	gu	+gv	gw	+gx	gy-	⊦gz
,							.							
Muli	tipl	y-2	ado	1 14	<u> 102</u>			1	451				sr	c1
k l	m	n	0	р	q	r	s	t	u	٧	W	Х	у	z
		1461										sr	<u>c2</u>	
e f	-f	-е	е	f	-f	-е	e \	f	-f	-е	е	f	-f	-е
						144	1 2						de	est
ek+fl	-fm	-en	eo-	+fp	-fq	-er	es-	+ft	-fu	-ev	ew	/+fx	-fy	-ez
' 	:		. 1 -		J		y							
Hor	IZO	nta	11-c		ا <u>1</u>	<u>403</u>		1	441				sr	c1
gk+gl	gm	+gn	go-	ьgр	gq	+gr	gs+	-gt	gu	+gv	gw	+gx	gy-	+gz
							14	42					sr	<u>c2</u>
ek+fl	-fm	-en	eo-	+fp	-fq	-er	es-	+ft	-fu	-ev	ew	/+fx	-fy	-ez
	1491											de	est	
Κ′	() <i>'</i>	S	,	W	/ <u>'</u>	L	,	F) <i>'</i>	7	Γ'	>	('
'	To 1404 FI									G	. 1	4a		

M	ult	ipl	y-a	dc	1 14	104			14	422		. ,	•	sro	1
k	1	m	n	0	р	q	r	S	t	u	٧	W	X	у	z
								14	32				:	sr	2
g	-g	-g	g	g	-g	-g	g	g	-g	-g	g	g	- g	-g	g
				<u> </u>	1443									de	st
gk	-gl	-gm	+gn	go-	gp	-gq	+gr	gs-	gt	-gu	+gv	gw	-gx	-gy-	+gz
								·							<i>'</i>
M	Multiply-add 1405 1452												sr	<u>c1</u>	
k		m	n	0	р	q	r	S	t	`u	V	W	X	У	z
				-	1462									sr	<u> 2</u>
f	-е	е	-f	f	-е	е	-f	f	-е	е	-f	f	-е	е	-f
	•					·	144	14				·		de	st
fk	-el	en	า-fn	fo	-ер	e	q-fr	fs	-et	eu	ı-fv	fw	-ex	еу	/-fz
								y							
H	ori	ZOI	nta	11-2	adc	1 <u>1</u> 4	106		1.	443				sr	<u>:1</u>
gk	-gl	-gm	+gn	go	gp	-gq	+gr	gs	gt	-gu	+gv	gw	-gx	-gy-	+gz
								14	44					sr	c2
fk	-el	en	n-fn	fo	-ер	е	q-fr	fs	-et	eı	ı-fv	fw	-ex	ey	/-fz
	1492											de	est		
١	Λ΄	C) ′	U	,	Υ	,	N	•	F	<i>'</i>	١	/ '	Z	•
	To 1407 FIG.									14	4b				

Mult	iply-a	add 1	<u>407</u>	1	491		src1
K'	Ο'	S'	W'	L'	P'	. ;. T <u>'</u> .	X'
				1423			src2
g	g	g	g	g	g	g	g
			147	1		dest	
K'g-	⊦O′g	S′g	+W′g	L'g	g+P′g	T'	g+X'g
Mult	inh,	2dd 4	400	7			
Mult	ipiy-d	add <u>1</u>	<u>.408</u>	1	1492		src1
M'	Q'	U′	Υ'	` N'	Z'		
					src2		
g	g	g g		g	g	g	g
j			147	72			dest
M'g	+Q′g	U'g	j+Y'g	N'	g+R′g	V	′g+Z′g
				F			
Hori	zonta	ai-au	d <u>1409</u>	1	1471		src1
K'g	+O'g	S'g	+W′g	L'	e+P′f	T	'f+X'e
1				1472			src2
M'g	M'g+Q'g U'g+Y'g				f+R'e	V	"e+Z"f
1			149	3			dest
	K		L		М		N
· 		FIG	i. 14c				

Multiply-add 1410 1491 Src1												
Multi	ply-a	add <u>14</u>	<u>410</u>	1	491		src1					
K'	Ο'	S'	W'	· L′	' P'	T'	Χ'					
				1424		. 3	src2					
е	f	-f	-е	e	f	-f	<u>-е</u>					
			147	73			dest					
K'e-	+O'f	-S'f	-W'e	L'	e+P'f	-7	'f-X'e					
·				¥								
Mult	iply-a	add 1	<u>411</u>		1492		src1					
M'	Q'	U'	Y'	N'	R'	V′	Z'					
				1424			src2					
е	f	-f	-е	e	f	-f	e					
		•	14	74			dest					
M'e	+Q′f	-U'	f-Y'e	N	'e+R'f	-\	/ˈf-Zˈe					
				¥								
Hori	zonta	al-ado	d <u>1412</u>	•	1710		src1					
K'e	+O'f	-S'f	-W'e	L	e+P'f	-	Γ′f-X′e					
				1730			src2					
M'e	+Q′f	-U"	f-Y'e	N	'e+R'f		/′f-Z′e					
		'	14	94			dest					
()		P		Q		R					
			FIG	i. 14d								

Multi	iply-a	idd <u>1</u> 4	491	2.34-1 2	src1			
K'	Ο'	S'	W ′ .	L'	P'	T'	Χ'	
					src2			
g	-g	- g	g	g	-g	-g	g	
•			14		dest			
K'g-O'g		W'g-S'g		L'	L'g-P'g		X'g-T'g	
Mult		src1						
M'	Q'		Y'		1492 R'	V'	Z'	
		1425					src2	
g	-g	-g	g	g	-g	-g	g	
		dest						
M'g-Q'g		Y'g-U'g		N'g-R'g		Z'g-V'g		
Horizontal-add 1415 1475 sre								
K'g-O'g		W'g-S'g		L'g-P'g		X'g-T'g		
1476							src2	
M'g-Q'g		Y'g-U'g		N.	N'g-R'g		Z'g-V'g	
1495						dest		
S		Т			U		V	
1	To 1416					FIG	i. 14e	

Multi	ply-a	dd <u>1</u>	<u>416</u>	1.	491		src1	
K'	0'	S'	W'	L'	P'	T′	X'	
					src2			
f	-е	е	-f	f	-е	е	-f	
		dest						
K'f-O'e		S'e-W'f		L'f-P'e		T'e-X'f		
Multiply-add 1417				± 1	492		src1	
M'	Q'	U'	Υ'	N'	R'	V'	Z'	
<u></u>		1426					src2	
f	-е	е	-f	f	-е	е	-f	
		dest						
M'f-Q'e		U'e-Y'f		N'f-R'e		V'e-Z'f		
Hori		src1						
K'f-O'e		S'e-W'f		L'f-P'e		T'e-X'f		
1			src2					
M'f-Q'e U'e-		'e-Y'f	-Y'f N'f-R'e			V'e-Z'f		
1496							dest	
W X		X		Υ	Z			

FIG. 14f

FIG. 15a

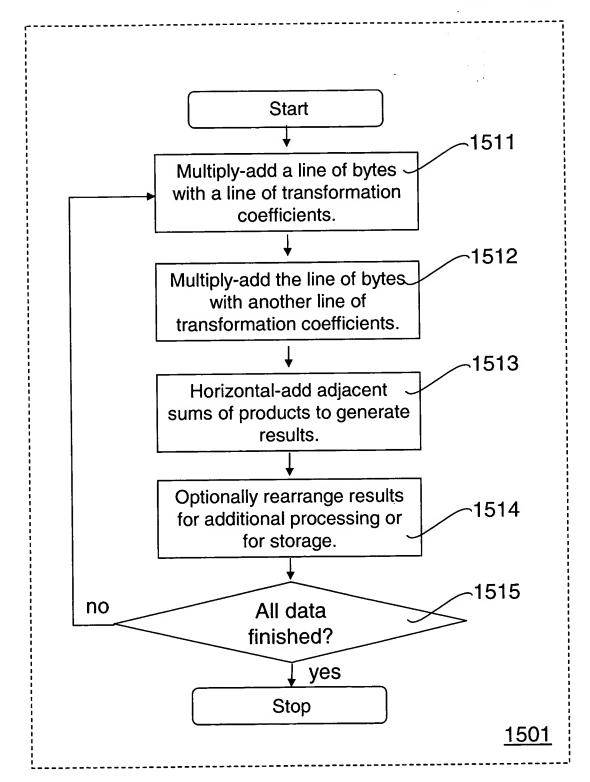


FIG. 15b

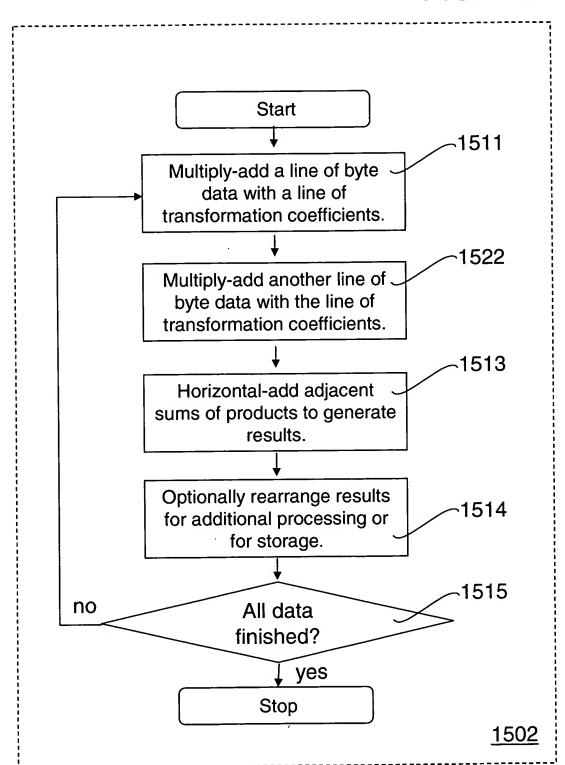


FIG. 15c

